

### Fiber G.657.A2 Singlemode Optical Fiber

Bending Loss Insensitive Fiber ITU-T G.657.A2(VAD Process). V-Protect offers strong bend-EX (Low Water Peak) single mode optical fiber produced by the Vapour Phase Axial Deposition (VAD) method, which enables construction of high-capacity, low-cost transmission in FTTH Networks. Strong bend-EX single mode optical fiber has step index and matched clad type characteristics operating in the entire wavelength region from 1280 nm to 1625 nm, free of OH-peak at  $1383 \pm 3$  nm in compliance with the latest ITU-T G.657.A2&B2 standards. Its low sensitivity to macrobending results in lower attenuation levels in the 1600 nm wavelength region. This fiber also has low PMD (Polarization Mode Dispersion) and supports legacy transmission equipment and applications.



#### Features

- Fully compliant with ITU-T G.652.D&G.657.A1
- Allowable bending diameter : 20mm (0.79in)
- 1/3 Bending diameter compared to conventional SMF(60mm (2.34in))
- Good splicing with conventional SMF and ZWPF

#### Application

- Fully compatibility with conventional SMF
- Minimized construction space
- FTTH/Premise/LAN cable
- Air blown fiber
- Optical cord

#### Fiber characteristics

|                                                | Single mode                           | G.657.A2                                               |
|------------------------------------------------|---------------------------------------|--------------------------------------------------------|
| ■ <b>Fiber type</b>                            |                                       |                                                        |
| ■ <b>Composition</b>                           |                                       |                                                        |
| Core                                           |                                       | Germanium doped silica                                 |
| Cladding                                       |                                       | Silica, step index and matched clad type               |
| Coating                                        |                                       | Dual layers of UV-cured acrylate                       |
| ■ <b>Geometrical Characteristics</b>           |                                       |                                                        |
| Mode field diameter                            |                                       | $8.6 \pm 0.4 \mu\text{m}$ at 1310 nm                   |
| Cladding diameter                              |                                       | $125.0 \pm 0.7 \mu\text{m}$                            |
| Core/cladding concentricity error              |                                       | $\leq 0.5 \mu\text{m}$                                 |
| Cladding non-circularity                       |                                       | $\leq 0.7 \%$                                          |
| Fiber curl radius                              |                                       | $\geq 4 \text{ m}$                                     |
| Primary coating diameter (for uncolored fiber) |                                       | $242 \pm 5 \mu\text{m}$                                |
| Primary coating diameter (for colored fiber)   |                                       | $250 \pm 10 \mu\text{m}$                               |
| Coating/cladding concentricity error           |                                       | $\leq 12 \mu\text{m}$                                  |
| ■ <b>Optical Characteristics</b>               |                                       |                                                        |
| Attenuation                                    | at 1310 nm                            | $\leq 0.34 \text{ dB/km}$                              |
|                                                | at 1550 nm                            | $\leq 0.20 \text{ dB/km}$                              |
|                                                | at $1383 \pm 3 \text{ nm}$            | $\leq 0.31 \text{ dB/km}$ (after H <sub>2</sub> aging) |
| Attenuation Change                             | at 1285 ~ 1330 nm                     | $\leq 0.03 \text{ dB/km}$ (1310 nm reference)          |
|                                                | at 1525 ~ 1575 nm                     | $\leq 0.02 \text{ dB/km}$ (1550 nm reference)          |
| Point discontinuity                            | at 1310 nm and 1550 nm                | $\leq 0.05 \text{ dB}$                                 |
| Zero dispersion wavelength                     |                                       | 1302 ~ 1324 nm                                         |
| Zero dispersion slope                          |                                       | $\leq 0.090 \text{ ps}/(\text{nm}^2 \cdot \text{km})$  |
| Chromatic dispersion                           | at 1285 ~ 1330 nm                     | $\leq 3.5 \text{ ps}/(\text{nm} \cdot \text{km})$      |
|                                                | at 1550 nm                            | $\leq 18 \text{ ps}/(\text{nm} \cdot \text{km})$       |
| Cable cut-off wavelength ( $\lambda_{cc}$ )    |                                       | $\leq 1260 \text{ nm}$                                 |
| PMD                                            | for individual value (uncabled fiber) | $\leq 0.15 \text{ ps}/\sqrt{\text{km}}$                |
|                                                | for link value                        | $\leq 0.1 \text{ ps}/\sqrt{\text{km}}$                 |

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## Singlemode Optical Fiber

## Optical fiber

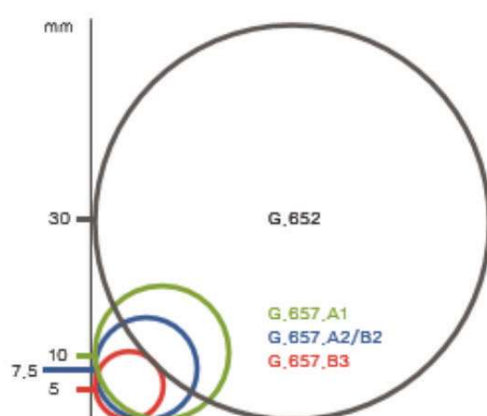
### ■ Mechanical Characteristics

|                                         |                                |
|-----------------------------------------|--------------------------------|
| Fiber proof test level                  | $\geq 120$ kpsi (1.2 % strain) |
| Macrobending loss:                      |                                |
| for 10 turns at a 7.5 mm mandrel radius | $\leq 0.03$ dB at 1550 nm      |
| for 10 turns at a 7.5 mm mandrel radius | $\leq 0.1$ dB at 1625 nm       |
| for 1 turn at a 5 mm mandrel radius     | $\leq 0.1$ dB at 1550 nm       |
| for 1 turn at a 5 mm mandrel radius     | $\leq 0.2$ dB at 1625 nm       |
| for 1 turn at a 3.75 mm mandrel radius  | $\leq 0.5$ dB at 1550 nm       |
| for 1 turn at a 3.75 mm mandrel radius  | $\leq 1.0$ dB at 1625 nm       |
| Coating strip force                     | 1.3 ~ 8.9 N                    |
| Dynamic fatigue resistance parameter    | $\geq 20$                      |

### ■ Environmental Characteristics

|                                              |                   |
|----------------------------------------------|-------------------|
| Induced attenuation at 1310 nm and 1550 nm:  |                   |
| from -60°C to +85°C temperature cycling      | $\leq 0.05$ dB/km |
| +85°C / 98 % RH temperature humidity cycling | $\leq 0.05$ dB/km |
| +85°C heat aging                             | $\leq 0.05$ dB/km |
| +23°C water immersion                        | $\leq 0.05$ dB/km |

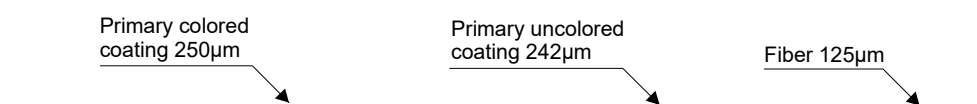
## ✦ Radius



## ✦ Packing

| ■ Fiber type           | Singlemode           | G.657.A2   |            |
|------------------------|----------------------|------------|------------|
|                        |                      | up to 25,2 | up to 50,4 |
| ■ Length on spool [km] |                      |            |            |
| ■ Spool dimension      | Flange diameter [mm] | 234.5      | 265        |
|                        | Barrel diameter [mm] | 152.0      | 170        |
|                        | Inner width [mm]     | 96.0       | 150        |
|                        | Outer width [mm]     | 116.0      | 175        |
|                        | Bore diameter [mm]   | 25.4       | 25,4       |

## ✦ Fiber construction



# Fiber G.657.A2

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Optical fiber

### Order code

OC-FA2-x

#### Fiber color

**00** - neutral, **01** - red, **02** - green, **03** - blue, **04** - yellow, **05** - white, **06** - grey, **07** - brown, **08** - violet, **09** - aqua, **10** - black, **11** - orange, **12** - pink, **13** - neutral/black, **14** - red/black, **15** - green/black, **16** - blue/black, **17** - yellow/black, **18** - white/black, **19** - grey/black, **20** - brown/black, **21** - violet/black, **22** - aqua/black, **23** - black/white, **24** - orange/black, **25** - pink/black

#### Standard colours:

| Fiber type   | G.652.D | G.657.A1,A2,B3 | OM1 62,5/125 | OM2 50/125 | OM3 50/125 | OM4 50/125 | OM5 50/125 |
|--------------|---------|----------------|--------------|------------|------------|------------|------------|
| Fiber colour | Yellow  | White          | Blue         | Orange     | Aqua       | Violet     | Green      |
| RAL          | 1021    | 9010           | 5015         | 2003       | 6027       | 4005       | 6001       |

### Label on the spool contain

Tape of fiber  
Length

### Warranty

V-Protect warrants that the delivered fibers meet this specification. If the fibers fail to meet this specification, V-Protect agrees to replace such failed fibers. V-Protect makes no warranty, however, as to the results to be obtained from the use of these fibers. In no event shall V-Protect be liable for removal or installation costs or other indirect or consequential damages.